

Title (en)
COMPACT TOTAL EVAPORATOR

Title (de)
KOMPAKTER TOTALVERDAMPFER

Title (fr)
ÉVAPORATEUR COMPACT COMPLET

Publication
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Application
EP 06753182 A 20060519

Priority
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Abstract (en)
[origin: WO2006125417A2] Continuous and smooth total evaporation of small flows of liquid that vary over time is required in many technical applications. When the evaporation occurs from a larger liquid pool, highly volatile portions are preferably evaporated first. When the total evaporation ensues in narrow evaporation channels, a boiling evaporation easily arises as well as the expelling of unevaporated liquid droplets. In addition, deposits in the narrow evaporation channels can lead to an irreparable breakdown of the evaporator. The novel evaporator avoids the cited drawbacks and is also suited for jointly evaporating a number of fluids that cannot be mixed. The evaporator is comprised of: a cold chamber (4), inside of which a pre-evaporating of the supplied fluid (9) is reliably prevented; an evaporating area (5), which is located downstream therefrom and which is formed by the annular gap (3) between an inner tube (1) and an outer tube (2) concentrically surrounding the former, the inner and/or outer tube (13) being heated reactively or by a heat-transfer fluid (11), and; an adjoining vapor chamber (6) for damping possible pulsatile pressures. Evaporation channels are incorporated, e.g. in the form of helical grooves in the outside surface of the inner tube (1) or in the inside surface of the outer tube (2). These evaporation channels can be accessed and cleaned when the inner tube and the outer tube are separated. A periodic or continuous self-cleaning is also possible, e.g. by turning or sliding the inner tube against the outer tube. Liquid is prevented from being expelled from the evaporation channels by the formation of the flow guide in the annular gap (3). A device that, to a large extent, is structurally identical to the evaporator also enables the controlled mixing, evaporation and/or reaction of a number of flows of fluid.

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